Section 1.2- Manipulating Data (Linear Transformations)

1. Original Histogram:

slight rt. skew

2. $\bar{x}$ = **69.49** M = **67** s = **11.88** IQR = **18**

+30 SPREAD

3. $\bar{x}$ = **99.49** M = **97** s = **11.88** IQR = **18**

x2.5 CENTER SPREAD

5. $\bar{x}$ = **173.72** M = **167.5** s = **29.69** IQR = **45**

x5+45 CENTER

7. $\bar{x}$ = **392.43** M = **380** s = **59.38** IQR = **90**

x5+45 x5

Manipulating Data (Linear Transformations)

- Multiplying an entire data set by a constant "*b*" changes….

center + spread

- How? **multiplies both center and spread by "b"**

- Examples: **mean, median, IQR, std. dev.**

- Adding a constant "*a*" to an entire data set changes…

Center

  - How? **adds "a" to the centers**

+ a

  - Examples: **median, mean, quartiles**

Example:

I have a distribution with the following statistics:

x= 25.3
M = 21
s = 3.1
IQR = 8

If I multiply each observation by 4 and add 6, what will the new Statistics be?

x4 +6 $\bar{x}$ = 107.2

x4 +6 M = 90

x4 s = 12.4

x4 IQR = 32